

### REMARKS

New independent claim 33 has been added by this paper. Claims 1, 3-26, 29, 30 and 32 stand rejected.

#### Rejections Under 35 U.S.C. § 112

Claims 1 and 3-26 stand rejected under 35 U.S.C. § 112, ¶ 1 for failing to comply with the written description requirement. Specifically, the Examiner has asserted that the following limitation found in claim 1 is not described in the original specification: “thereby disproportionately increasing a temperature of said catalyst with respect to said support.” Applicant respectfully disagrees and traverses the rejections.

It is well settled that 35 U.S.C. § 112, ¶ 1 does not establish an *in haec verba* (“in these same words; verbatim”) requirement between the original specification and the pending claims. *See Kao Corp. v. Unilever United States, Inc.*, \_\_\_ F.3d \_\_\_ (Fed. Cir. March 21, 2006); *see also In re Wright*, 866 F.2d 422 (Fed. Cir. 1989) (claims directed to microcapsules that are “not permanently fixed” were held to be supported under § 112 even though the language “not permanently fixed” did not appear verbatim in the specification). Rather, all that is required is that the claim limitations “be supported in the specification through express, implicit, or inherent disclosure.” MPEP § 2163(I)(B).

Applicant submits that, while the language “disproportionately increasing a temperature of said catalyst with respect to said support” does not appear verbatim in the specification, the specification contains ample disclosure, both express, implicit and inherent, to support the claim language.

For example, paragraph 11 of the Application provides that electrical energy (i.e., an electric current) is supplied to the catalyst by way of the electrically conductive support, thereby “locally” activating the catalyst. Upon reading the specification, one skilled in the art will understand that the term “locally” refers to the site of the catalyst relative to the support. Specifically, one skilled in the art will understand that “locally” activating the catalyst means increasing the temperature of the catalyst at the site of the catalyst with respect to the overall

support on which the catalyst is disposed. Therefore, one skilled in the art will understand that the temperature of the catalyst increases substantially and disproportionately with respect to the support.

Additionally, the specification provides an example of a catalyst loaded onto an electrically conductive carbonaceous support, wherein the support receives an electric current by way of electrodes. Application, ¶¶ 49-50 (Example 2). Those skilled in the art will understand that the temperature of the catalyst will inevitably increase substantially and disproportionately with respect to the support upon application of an electric current to the support. Therefore, Example 2 inherently teaches disproportionate heating.

Applicant submitted a declaration under 37 C.F.R. § 1.132 of Dr. Terry Baker as factual evidence in support of Applicant's position that the specification discloses, albeit not *in haec verba*, a catalytic system wherein the temperature of the catalyst increases substantially and disproportionately with respect to the support. Specifically, the Declaration offers factual evidence that a person skilled in the art, namely Dr. Baker, upon reading the specification, understands that the specification teaches disproportionate heating. Specifically, the Declaration of Dr. Baker offers, among other things, the following factual evidence:

1. A person skilled in the art understands that when a catalyst is supported on an electrically conductive carbonaceous support and resistively heated, as described in the present Application, the temperature of the catalyst is increased to a temperature that is substantially and disproportionately higher than the temperature of the support;
2. A person skilled in the art understands "locally activate," as used in the present Application, to mean the catalyst is resistively heated to a disproportionately higher temperature than the support;
3. A person skilled in the art understands that the inevitable result of applying an electric current to an electrically conductive carbonaceous support having a catalyst dispersed therein or thereon, as described in the present Application, is a disproportionate heating of the catalyst with respect to the support; and

4. A person skilled in the art understands that when a Cu/Zn/Al catalyst is supported on a carbon cloth and an electric current is passed through the carbon cloth, as described in Example 2 of the present Application, the temperature of the Cu/Zn/Al catalyst will inevitably increase substantially with respect to the temperature of the carbon cloth, thereby activating the catalyst, while maintaining relatively low reaction temperatures.

Declaration of Dr. Baker, ¶¶ 12-16.

The Examiner has not provided adequate support for the § 112, ¶ 1 rejections by failing to offer evidence or reasons why a person skilled in the art would not recognize that the specification of the present application teaches disproportionate heating. Furthermore, the Examiner has not offered any evidence that would rebut the factual allegations contained in the Declaration of Dr. Baker. Rather, the Examiner merely states that the Declaration “lacks factual evidence showing the ‘substantial or disproportion’ temperature difference between the catalyst and the support.” Office action, p. 12, ll. 12-14.

Contrary to the Examiner’s assertion, factual evidence supporting the disclosure of disproportionate heating has been submitted. Applicant submits that the entire Declaration of Dr. Baker is factual evidence in support of the position that the specification of the present application discloses and supports claim limitations requiring that the temperature of the catalyst disproportionately increases with respect to the support. *See In re Alton*, 76 F.3d 1168, 1174-75 (Fed. Cir. 1996) (a declaration offers factual evidence to explain how one of ordinary skill in the art understands the disclosure of the specification).

Accordingly, Applicant respectfully requests withdrawal of the rejections of claims 1 and 3-26 under 35 U.S.C. § 112, ¶ 1.

Claims 29, 30 and 32 stand rejected under 35 U.S.C. § 112, ¶ 1 for failing to comply with the written description requirement. Specifically, the Examiner has asserted that the limitations requiring that the temperature of the catalyst “substantially increases” with respect to the support are not described in the original specification. For the reasons expressed above with respect to

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the “disproportionately” limitation, the rejections of claims 29, 30 and 32 are respectfully traversed.

Rejections Under 35 U.S.C. § 103(a)

Claims 1, 3-11, 17, 22-26, 29, 30 and 32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,641,795 to Abe in view of U.S. Patent No. 4,415,479 to Puskas et al. The rejections are respectfully traversed.

The Abe reference discloses a catalytic system including a catalyst loaded onto an electrically heatable support. The temperature of the support increases when an electric current is supplied, thereby increasing the temperature of the associated catalyst and the reactants. The Abe reference does not, however, teach or suggest, either explicitly or implicitly, “a support of electrically conductive carbonaceous material” or “disproportionately increasing a temperature of said catalyst with respect to said support.”

The Puskas et al. reference discloses a catalyst formed by adsorbing crystallites of a catalytically active palladium onto the surface of a porous carbonaceous support material that includes activated carbon. The resulting catalyst is used in a catalytic hydrogenation process for hydrogenating crude terephthalic acid. The Puskas et al. reference does not, however, teach or suggest, either explicitly or implicitly, “a support of electrically conductive carbonaceous material,” “supplying an electric current to said support” or “disproportionately increasing a temperature of said catalyst with respect to said support.”

As set forth in Section 2142 of the MPEP, rejections under 35 U.S.C. § 103(a) require the Examiner to establish a *prima facie* case of obviousness. The basic requirements of a *prima facie* case of obviousness are (1) a suggestion or motivation to modify or combine references, (2) a reasonable expectation of success and (3) a teaching or suggestion of all claim limitations in the combined references. MPEP § 2143.

The Office action does not establish a *prima facie* case of obviousness and, therefore, Applicant respectfully requests withdrawal of the outstanding art rejections.

The combination of the Abe reference with the Puskas et al. reference does not teach or

suggest each of the limitations of claim 1. First, claim 1 requires an “electrically conductive” carbonaceous support. The Abe reference does not teach a carbonaceous support, yet alone an electrically conductive carbonaceous support. Therefore, the Examiner cites to the Puskas et al. reference as teaching a carbonaceous support.

The Examiner apparently has ignored the explicit requirement of claim 1 that the carbonaceous support is “electrically conductive.” While Applicant concedes that the Puskas et al. reference teaches a carbonaceous support, Applicant submits that the Puskas et al. reference does not teach an electrically conductive carbonaceous supports. As the Examiner may be aware, not all carbonaceous materials are necessarily electrically conductive such that they may be used as described in the present application.

Second, the combination of the Abe reference with the Puskas et al. reference does not teach or suggest a disproportionate temperature increase between the catalyst and the support (also referred to herein as “disproportionate heating”).

The Examiner has suggested that once the carbonaceous support taught by the Puskas et al. reference is substituted for the electrically heatable support taught by the Abe reference, the resulting combination would inherently result in disproportionate heating. Such an argument is improper and has been expressly rejected by the courts. *See In re Spormann*, 363 F.2d 444 (CCPA 1966). While Section 2112 of the MPEP states that the “inherent disclosure of a prior art reference may be relied upon” when rejecting claims under 35 U.S.C. § 103(a), it does not give patent examiners license to combine references and deduce inherent disclosures from the combination. Rather, Section 2112 only authorizes patent examiners to rely on disclosures that are actually inherent within “a” (i.e., a single) prior art reference. In *Spormann*, the court held that “the inherency of an advantage and its obviousness are entirely different questions. That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown.” *Id.* at 448.

Thus, applying *Spormann* to the present application, whether or not disproportionate heat is inherent after making the Examiner’s proposed combination, the fact remains that

disproportionate heating was not known in the prior art (i.e., none of the references cited in the Office action teach or suggest disproportionate heating) and, therefore, cannot be obvious over the prior art.

Accordingly, inasmuch as the combination of the Abe reference with the Puskas et al. reference fails to teach or suggest each and every limitation of claim 1, Applicant submits that the Examiner's combination cannot, as a matter of law, render obvious claim 1 or the claims depending therefrom.

The Examiner has not identified any prior art disclosure that would suggest or motivate one skilled in the art to substitute the carbonaceous support taught by the Puskas et al. reference for the electrically heatable support taught by the Abe reference. Applicant submits that no such suggestion or motivation exists and respectfully requests withdrawal of the outstanding art rejections.

The carbonaceous support described in the Puskas et al. reference is not used in an electrically actuated system and does not, in any way, receive an electric current. Therefore, Applicant submits that one skilled in the art, absent the hindsight gleaned from the disclosure of the present application, would not be motivated to use the carbonaceous support described in the Puskas et al. reference in the electrically heated process described in the Abe reference.

Furthermore, Applicant submits that the disclosure of the Abe reference would not motivate one skilled in the art to look to carbonaceous supports of the type described in the Puskas et al. reference. Rather, the catalytic system disclosed in the Abe reference requires a support that is electrically heatable to a substantially high temperature such that the entire catalyst unit (i.e., the support and the catalyst) and associated reactants are heated, by the support, to the appropriate reaction temperature. Such a result is not achievable using a carbonaceous support. Specifically, the Abe reference teaches using electrically heatable sintered materials as a support, which quickly heat to a high temperature when an electric current is passed therethrough. Abe, col. 7, ll. 12-20. The prior art cited in the Office action provides no suggestion or motivation to one skilled in the art to make the leap from electrically heatable

sintered materials to an electrically conductive carbonaceous material.

Furthermore, the Examiner's proposed combination (i.e., using activated carbon, which is negligibly conductive, in place of the electrically heatable support taught by the Abe reference) would substantially alter the reaction method described by the Abe reference and, most likely, render the reactor taught by the Abe reference inoperable. Therefore, one skilled in the art would most likely be deterred from making the Examiner's proposed combination.

Thus, Applicant submits that the prior art cited in the Office action contains no suggestion or motivation to combine the Abe reference with the Puskas et al. reference. Furthermore, Applicant submits that the Examiner's combination of the Abe reference with the Puskas et al. reference cannot give rise to a reasonable expectation of success.

In light of the foregoing, Applicant respectfully requests that the Examiner withdraw the outstanding rejections of pending claims 1, 3-11, 17, 22-26, 29, 30 and 32 pursuant to 35 U.S.C. § 103(a).

Claims 4 and 12-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Abe reference in view of the Puskas et al. reference and further in view of U.S. Patent No. 6,383,972 to Parmentier et al. For the reasons expressed above, the rejections of claims 4 and 12-18 are respectfully traversed.

Claims 19-21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Abe reference in view of the Puskas et al. reference and further in view of U.S. Patent No. 6,824,755 to Colbert et al. For the reasons expressed above, the rejections of claims 19-21 are respectfully traversed.

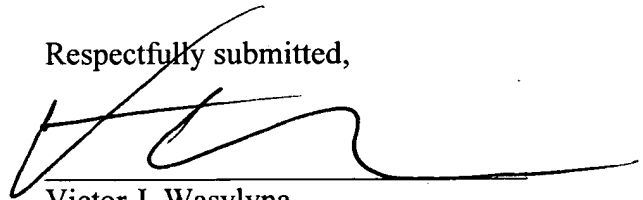
Claims 1, 5, 23, 29-30 and 32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,868,841 to Affleck et al. in view of the Puskas et al. reference. The Affleck et al. reference, like the Abe reference, does not teach or suggest "a support of electrically conductive carbonaceous material" or "disproportionately increasing a temperature of said catalyst with respect to said support." Therefore, for the reasons expressed above, the rejections of claims 1, 5, 23, 29-30 and 32 are respectfully traversed.

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Accordingly, it is submitted that the application is in condition for allowance and formal notice thereof is respectfully requested.

Applicant hereby authorizes the Commissioner under 37 C.F.R. § 1.136(a)(3) to treat any paper that is filed in this application, which requires an extension of time, as incorporating a request for such an extension. The Commissioner is authorized to charge any additional fees required by this paper or to credit any overpayment to Deposit Account No. 20-0809.

Respectfully submitted,



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